POSITIVE AND NEGATIVE VALUES OF BLACKBIRDS

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Abstract: Human-blackbird interactions cause a variety of effects. Some of these effects or values are beneficial, others are harmful. Positive values, while often intangible, are, nevertheless, very real. For instance, many people enjoy seeing blackbirds or hearing their songs. Most of the negative values are tangible and can be quantified. These negative values, or liabilities, include damage caused by the birds' foraging in agricultural crops, especially corn, rice, and sunflower. Given the hundreds of millions of blackbirds in North America, the marginal value of an individual blackbird is likely to be very low. If a control program can successfully reduce blackbird damage to local crops while maintaining a sufficient population of blackbirds to allow the public to enjoy these birds fully, lethal control measures may increase the net positive value of blackbirds for society. There is, however, one wildlife value that biologists have not articulated – the empathy value of wildlife. It is derived from the animal's ability to elicit empathy from humans. A lethal control program, which appears to serve the public interest absent of empathy values, might prove to be a disservice once these values are included in the analysis.

Key words: blackbirds, damage, human dimensions of wildlife.

When North America was first settled by Europeans during the 1600s, blackbird damage to the colonists' grain fields threatened them with starvation. For instance, consider the writing of John Winthrop, who was the first governor of the Massachusetts Bay Colony in the 1600s:

> "Crows, Sterlings, and other Birds . . . come in great flights into the fields when the [corn] eare beginneth to be full, before it hardneth, and being allureing by the sweetness of the corn, will sit upon the stalk, or the ear it selfe, and pick at the Corne through the huske at the top of the Eare (for there it is tenderest) and not cease that worke toill they have pulled away some of the huske that they may come at the Corn which will [then] be plucked out so far as they can come at it" (Conover 2001).

Many things in North America have changed during the ensuing 400 years, but blackbird damage to grain fields is not one of them (Table 1). Though the inclusive term, blackbirds, refers to several species: red-winged blackbirds (*Agelaius phoeniceus*), yellow-headed blackbirds (*Xanthocephalus xanthocephalus*), common grackles (*Quiscalus quiscala*), brown-headed cowbirds (*Molothrus ater*), and European starlings (*Sturnus vulgaris*), most damage to grain fields is caused by the red-winged blackbird – the most abundant bird in North America.

There are 3 different times a year when blackbirds cause losses to agricultural producers (Table 1). In the spring, blackbirds and starlings forage in grain fields and eat the newly planted seed (Stickley et al. 1979, Heisterberg 1983). This type of damage lowers the productivity of fields by producing areas devoid of grain plants. Stone and Mott (1973b) estimated that this type of damage reduced U.S. corn yields annually by 6-32 million bushels.

During fall, blackbirds return to cornfields to forage on the ripening grain. Besser and Brady (1986) examined 2,500 fields in 24 states making up the Corn Belt. They reported that 12 million bushels were lost annually in the United States due to blackbird damage to ripening corn. If we value a bushel of corn at $2.00, then blackbird damage to ripening cornfields was $24 million each year, and their damage to newly-planted cornfields cost an additional $12-$64 million annually. Furthermore, blackbird damage to corn seems to be increasing in severity. Wywialowski (1996) noted that bird damage to corn in the Corn Belt averaged 0.3 bu/ha in 1970, 0.4 during 1981, and 0.5 in 1993.

The third time of year when blackbirds cause agricultural losses is during the fall and winter when large flocks forage at dairy farms and livestock feedlots on the grain that is intended for livestock (Balser 1968, Besser et al. 1968, Dolbeer et al. 1978). While the extent of these losses are unknown for most of the United States, in Tennessee, blackbirds ate 2% of the grain distributed at feedlots (Glahn 1983).

Blackbirds also caused losses in several other crops (Table 1). Hothem et al. (1988) reported that blackbirds, in 1980, reduced sunflower yields by 2% in North Dakota, South Dakota, and Minnesota: the states where most of the U. S. sunflowers fields are located. In Arkansas, blackbirds annually caused $16 million to rice farmers, $1 million to wheat growers, and $600,000 to

Table 1. Red-winged blackbird damage to agriculture.

Crop	Location	Year	% loss to blackbirds	Total loss to blackbirds	References
Corn (Newly-Planted Fields)					
	Corn Belt	1972		6–32 million bu	Stone and Mott 1973b
Corn (Ripening Fields)					
	Ontario	1976	0.7%		Tyler and Kannenberg 1980
	Quebec	1975	0.4%		Weatherhead et al. 1982
	Penn.	1979	1.3 bu/ha	0.6 million bu	Wakeley and Mitchell 1981
	Penn.	1995	1.2 bu/ha or 0.5%		Tzilkowski et al. 2002
	Corn Belt (East)	1977	0.4–0.7%	3.2 million bu	Stickley et al. 1979
	Corn Belt (East)	1970s	0.3–0.8%		Dolbeer 1981
	Corn Belt	1970	0.1% or 0.2 bu/ha	6.2 million bu	Stone 1973
	Corn Belt	1971	0.2% or 0.2 bu/ha	6.8 million bu	Stone 1973
	Corn Belt	1971	0.16 bu/acre	3.1 million bu	Stone and Mott 1973a
	Corn Belt	1981	0.4 bu/ha	7.7 million bu	Besser and Brady 1986
	Corn Belt	1993	0.5 bu/ha or 0.2%	10.3 million bu	Wywialowski 1996
	U.S.	1970			Stone et al. 1972
	U.S.	1981		12.0 million bu	Besser and Brady 1986
Feedlot Operations					
	Tenn.	1980	2%		Glahn 1983
Rice					
	Ark.	1957	3.2 bu/ha		Neff and Meanley 1957
	Ark.	1963	4%		Stone and O'Halloran 1966 as cited by Meanley 1971
	Ark.	1954	1.2%		Meanley 1971
	Calif.	1972	<1%		Stone 1973
Sunflowers					
	Calif.	1980	<1%		Avery and DeHaven 1982
	Calif.	1981	<1%		Avery and DeHaven 1982
	N.D.	1987	6%		Linz et al. 1989
	N.D., Minn.	1972	1.2%		Stone 1973
	N.D., S.D., Minn.	1979	0.8%		Hothem et al. 1988
	N.D., S.D., Minn.	1980	2.0%		Hothem et al. 1988

oat farmers (Conover 2001). Other crops damaged by blackbirds include sweet corn (Dolbeer et al. 1986), peanuts (Conover 2001), and sorghum (Royall 1975).

Blackbird damage to crops in North America provides a classic example of an economic externality. Blackbirds are "owned" by the public and are managed by the government. However, private landowners bear a disproportionate cost of providing the birds' food and habitat. Not only is this undesirable for the standpoint of the landowner, but it may also affect other wildlife. Landowners, who are already losing grain to blackbirds, may be less likely to support the presence of other kinds of wildlife on their lands (Conover 1998).

So what, if anything, should be done to protect our grain producers from blackbirds? On most farms, losses to blackbirds are <2 bu/ha. When individual losses are low, it is often not cost effective for farmers themselves to invest in measures that would reduce these losses. The cost of obtaining and using these control measures (e.g., propane cannons) may exceed the revenues recovered from the grain that is saved. Further, should farmers invest in these measures, it is possible that they will simply push the birds onto nearby farms where they may cause similar damage (Conover 2001). While individual efforts might not be economically justified, total losses throughout the agricultural industry are very high, and it may be cost effective to reduce bird damage on a regional scale. One potential option might be to reduce local blackbird populations in areas where grain losses occur, necessitating the killing of millions of blackbirds annually. However, as the government manages blackbirds for the public and not just for landowners, any management strategy it undertakes must consider how the public values blackbirds.

Conover (2001) lists several values provided by wildlife including ecological, existence, economic, and aesthetic values. All of these apply to blackbirds. One of the greatest values of blackbirds is their ecological value or the role they play in the ecosystem. For instance, in cornfields blackbirds benefit farmers by eating insects such as the northern corn rootworm beetle and corn earworms (Mott and Stone 1973, Bollinger and Caslick 1985). Blackbirds also serve as an important food item for many predators.

Other conspicuous values of blackbirds are their existence value and economic value. Every species has

its own genes, proteins, and other organic chemicals which make it unique. Some of these chemicals and other traits cannot be duplicated and may become important to mankind in the future. This is a species existence value. The economic value of blackbirds is primarily the damage they cause agricultural producers (Table 1). This is the only value of blackbirds that is negative (i.e., blackbirds cause more harm than good to the nation's economy).

Blackbirds also have an aesthetic value which is measured by how much they increase a person's quality-of-life. Red-winged blackbirds are one of North America's most colorful birds and have a beautiful, melodious song. Many people would feel that a trip to a marsh or lake would be lacking if they could not hear and see red-winged blackbirds. These birds also are 1 of the first birds to migrate in the spring, making their arrival an early harbinger of spring. Many people in the Dakotas eagerly await the arrival of these birds after a long hard winter. In summary, blackbirds provide many positive benefits for society.

There are hundreds of millions of blackbirds in North America (Meanley and Royall 1976, Besser 1985, Dolbeer and Stehn 1979, Linz and Hanzel 1997), and the marginal benefit of an individual blackbird at such high populations is likely very low. For example, a person's enjoyment of hearing these birds sing probably would not decrease dramatically if local populations decreased by 50%. If a control program can successfully reduce blackbird damage to local crops while maintaining a sufficient number of blackbirds so that the public can fully enjoy their benefits, then a lethal control program may result in a positive benefit for society.

However, there is another value of wildlife which biologists have not articulated: the empathy value of wildlife. Empathy can be defined as the human ability to project one's own consciousness into another person's or animal's feelings or spirit. An animal's empathy value is its ability to elicit empathy. Empathy values are positive when they make people happy and negative when they make people sad or uncomfortable.

Wildlife is not the only source of empathy values. Farmers, who work hard all year raising their crops only to see their profits fly away in the fall, also engender empathy values from the public. Hence, a wildlife agency may be criticized for causing the deaths of animals if it engages in a lethal control program or criticized for being unsympathetic to the plight of farmers if it does not.

Government agencies considering a lethal control program should consider all of the costs and benefits of the proposed program. A program, which appears to serve the public interest absent of empathy values, may prove to be a disservice once these values are included in the analysis.

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